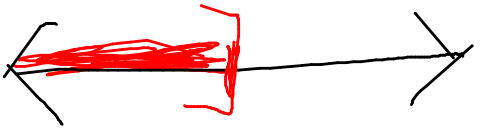
1. $x \leq -2$



-2

$(-\infty, -2]$

2. $x < 3$

3

$(-\infty, 3)$

3. $x \geq -4$

-4

$[-4, \infty)$

4. $10(2x-1) \leq 5(3x-4)$

$20x - 10 \leq 15x - 20$

$-15x \quad +10 \quad -15x \quad +10$

$\frac{5x}{5} \leq \frac{-10}{5}$

$x \leq -2$

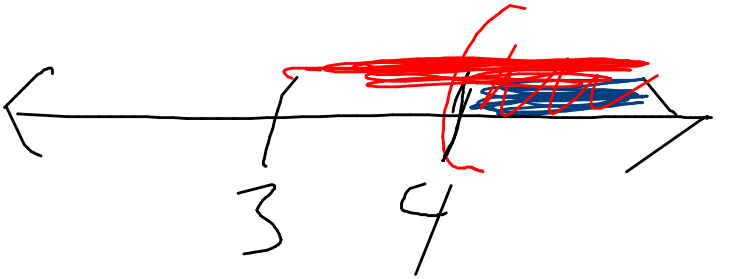
$(-\infty, -2]$

Same as Q1

5. $-5x \leq -20$ and $x + 5 > 8$

$-5 \quad -5$ $\quad$ $-5 \quad -5$

$x \geq 4$ $\quad$ $x > 3$



Overlap

$(4, \infty)$

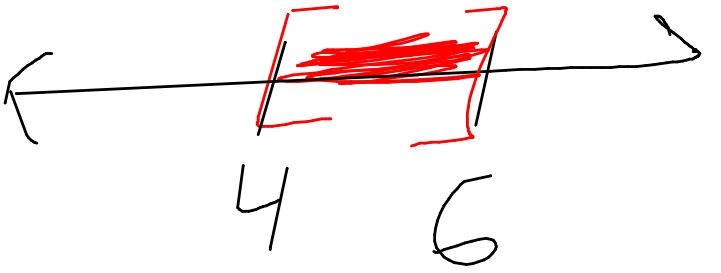
6. $4 \le 2t - 4 \le 8$

$+4 \quad +4 +4$

$8 \le 2t \le 12$

$\frac{}{2} \quad \frac{}{2} \quad \frac{}{2}$

$4 \le t \le 6$



$[4, 6]$ ✓

7. $6x - 4 < 14$ or $-2x < -14$

$+4 \quad +4$

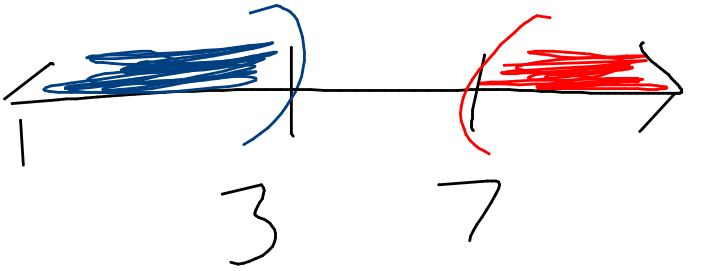
$6x < 18$

$\frac{6x}{6} < \frac{18}{6}$

$x < 3$

$-2 \quad -2$

$x > 7$



$(-\infty, 3) \cup (7, \infty)$

8. $|2x-3|=5$

AST

$2x-3=5$

$+3\ +3$

$\frac{2x}{2}=\frac{8}{2}$

$x=4$ ✓

opp

$2x-3=-5$

$+3\ +3$

$\frac{2x}{2}=\frac{-2}{2}$

$x=-1$ ✓

9. $|x-5|+4=7$

$-4\ -4$

$|x-5|=3$

AST

$x-5=3$

$+5\ +5$

$x=8$ ✓

opp

$x-5=-3$

$+5\ +5$

$x=2$ ✓

10. $|x-3|+8=9$

$-8\ -8$

$|x-3|=1$

$x-3=1$ $+3\ +3$

$x=4$ ✓

OR

$x-3=-1$ $+3\ +3$

$x=2$ ✓

11. $|9x-9|=|2x+19|$

ABS

$9x-9=2x+19$

$-2x\ \ -2x$

$7x-9=19$

$+9\ \ +9$

$\frac{7x}{7}=\frac{28}{7}$

$x=4$

OR

$9x-9=-2x-19$

$+2x\ \ +2x$

$11x-9=-19$

$+9\ \ +9$

$\frac{11x}{11}=\frac{-10}{11}$

$x=-\frac{10}{11}$

12. $|2x+1|+1<8$

$-1 \quad -1$

$|2x+1|<7$

$2x+1<7 \qquad 2x+1>-7$

$-1 \quad -1 \qquad -1 \quad -1$

$2x<6 \qquad 2x>-8$

$x<3 \qquad x>-4$

$(-4, 3)$ ✓

13. $|6x-3|+5>26$

$-5 \quad -5$

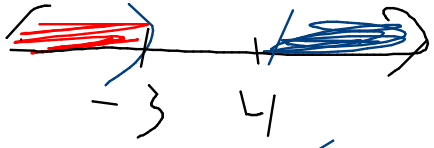
$|6x-3|>21$

$6x-3>21 \qquad 6x-3<-21$

$+3 \quad +3 \qquad +3 \quad +3$

$6x>24 \qquad 6x<-18$

$x>4 \qquad x<-3$



$(-\infty, -3) \cup (4, \infty)$ ✓

14. Determine if the ordered pair $(4,-3)$ is a solution to $x-y>5$. Show all work.

$4 + 3 > 5$

$7 > 5$ ✓

YES!

15. Graph the inequality: $x + 3y \leq -3$

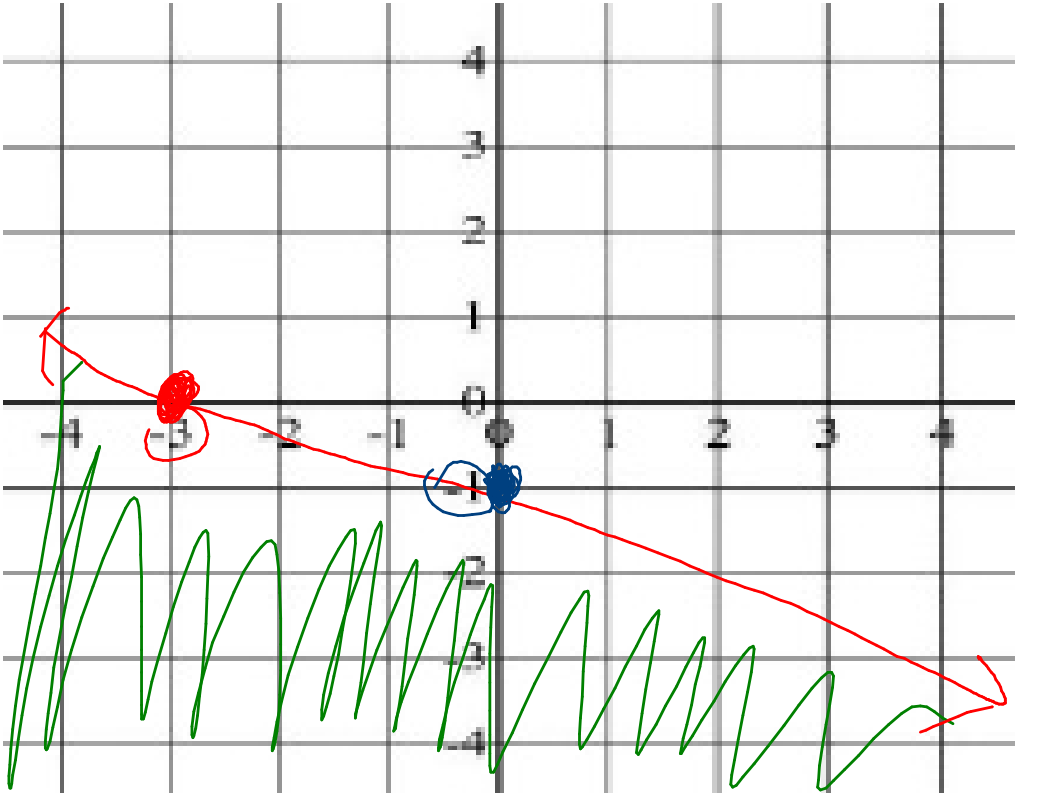
$x = 0$ $\quad y = 0$

$3y \leq -3$ $\quad x \leq -3$

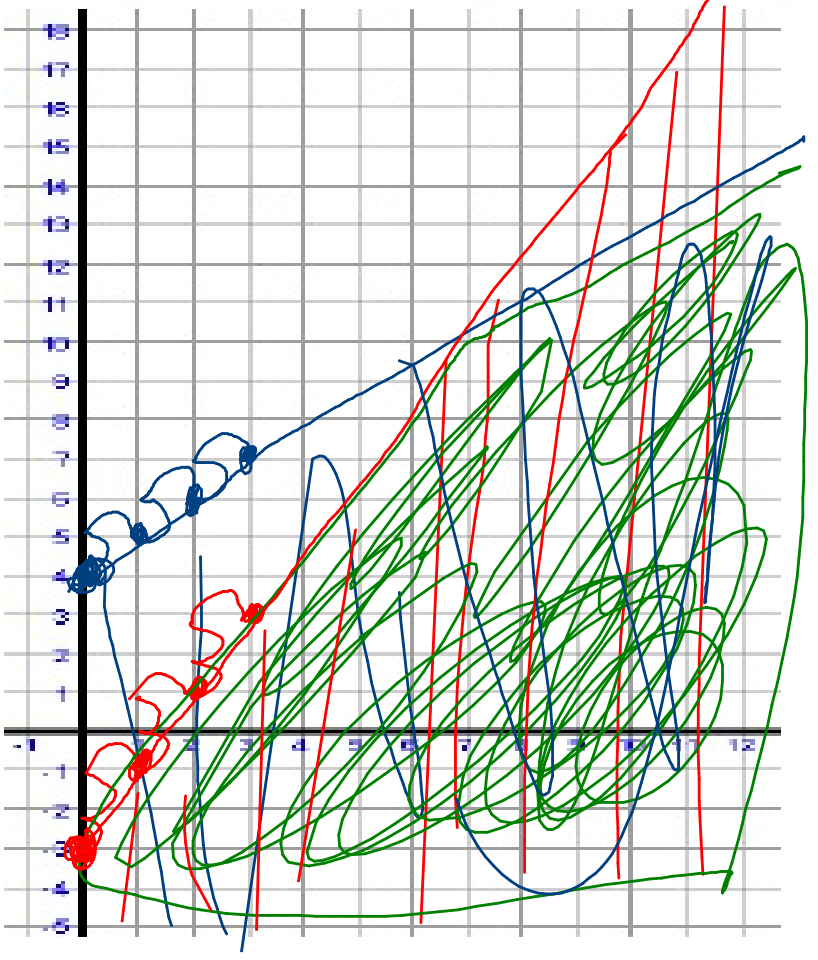
$y \leq -1$ $\quad (-3, 0)$

$(0, -1)$ ✓

shade down



16. Graph the solution of this system of linear inequalities: $\begin{cases} y \le 2x - 3 \\ y \le x + 4 \end{cases}$



17. $\sqrt[2]{y^{10}}$ y^5 ✓

18. $\sqrt[3]{64y^9}$ → $4y^3$ ✓

19. $-\sqrt{36}$ → -6

20. $\sqrt[3]{-27}$ → -3

21. $\sqrt[4]{-9}$ → No answer

22. $16^{\frac{1}{2}}$ — $\sqrt{16} = 4$ ✓

23. $-27^{\frac{1}{3}}$ → $\sqrt[3]{-27} = -3$ ✓

24. $\frac{1}{x^{-\frac{4}{7}}}$ $\frac{1}{x^{\frac{4}{7}}}$ ✓

25. $\sqrt[24]{x^6}$ $x^{\frac{6}{24}} = x^{\frac{1}{4}}$ ✓